

REMARKS

I. Introduction

With the cancellation herein without prejudice of claim 16 and the addition of new claim 22, claims 11 to 15 and 17 to 22 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable. Reconsideration is respectfully requested.

Applicants note with appreciation the acknowledgement of the claim for foreign priority and the indication that all certified copies of the priority documents have been received.

II. Rejection of Claims 11 to 13, 15, 17 to 19 and 21 Under 35 U.S.C. § 102(e)

Claims 11 to 13, 15, 17 to 19 and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,338,782 (“Imamura”). For at least the following reasons, Applicants respectfully submit that Imamura does not anticipate the present claims.

Claim 11 has been amended herein, without prejudice, to incorporate the subject matter of cancelled claim 16. Claim 11, as presented, relates to a sensor element for detecting a concentration of a gas component in an exhaust gas of an internal combustion engine, comprising, in relevant part, a heater electrically connected to a first and a second heater supply lead, the first heater supply lead at least largely covering a full surface of the sensor element in a supply region and/or a region of the heater and at an at least largely constant electrical potential. This amendment introduces no new matter.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Calif.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

The Office Action states, at paragraph 8, that Imamura does not teach a heater supply lead that at least covers a full surface of the sensor element in at least one of a supply region and a region of the heater. As such, Imamura does not disclose, or even suggest, all of the features of claim 11, as presented, and therefore does not anticipate independent claim 11, or its dependent claims 12, 13, 15, 17 to 19 and 21.

Withdrawal of the present rejection is therefore respectfully requested.

III. Rejection of Claims 14, 16 and 21 Under 35 U.S.C. § 103(a)

Claims 14, 16 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Imamura and PCT Application Publication No. WO 01/29546 (“Duce”). For at least the following reasons, Applicants respectfully submit that the combination of Imamura and Duce does not render unpatentable the presently pending claims.

As set forth above, claim 11 has been amended herein to incorporate the subject matter of cancelled claim 16. Claim 11 relates to a sensor element for detecting a concentration of a gas component in an exhaust gas of an internal combustion engine, comprising, in relevant part, a heater electrically connected to a first and a second heater supply lead, the first heater supply lead at least largely covering a full surface of the sensor element in a supply region and/or a region of the heater and at an at least largely constant electrical potential. The combination of Imamura and Duce does not disclose, or even suggest, the first heater supply lead of claim 11.

The Office Action refers to the low-voltage-side lead portion 552 and the high-voltage-side lead portion 551 of Imamura as disclosing the first and second heater supply leads of claim 11. As stated in the Office Action, Imamura does not disclose a heater supply lead that at least covers a full surface of the sensor element in at least one of a supply region and a region of the heater. The Office Action refers to page 9, lines 10 to 15 of Duce as allegedly disclosing this feature. Duce, however, merely describes electrolyte and protective layers that may comprise entire layers of a gas sensor. There is no indication, in either Duce or Imamura, that heater supply leads could also be treated in the same manner. Nor is there any indication that such treatment would be advantageous. The use of the first heater supply lead as a shield to the measuring device, shielding the measuring device from induced voltages of the second heater supply lead that result from changes in the potential of the second heater supply lead occurring during operation, is a novel aspect of the present application. It would not have been obvious to treat the first heater supply lead as a shield, and as such it would not have been obvious to treat the first heater supply lead in the same manner as the electrolyte and protective layers of Duce.

Further, the Office Action asserts that a full layer of a heater supply lead would ensure contact between the heater and the power source. No indication has been provided, however, that such measures are necessary, or that the previous methods of contacting the heater to the power source were unsatisfactory. As such, it would not have been obvious to one of ordinary skill in the art to combine the teachings of Duce with respect to electrolyte and protective layers to heater supply leads.

Therefore, the combination of Imamura and Duce does not render unpatentable independent claim 11, or dependent claim 14.

Claim 16 has been cancelled herein, without prejudice. Therefore, the rejection of claim 16 has been rendered moot.

Claim 21 has been amended herein, without prejudice, to be rewritten in independent form. Claim 21, as presented, is directed to a sensor element for detecting a concentration of a gas component in an exhaust gas of an internal combustion engine, wherein a perpendicular projection of a second heater supply lead onto the plane of stratification of a first heater supply lead lies at least regionally on the first heater supply lead. The Office Action rejects claim 21 as an inherent default of the rejection of claim 16 based on the combination of Imamura and Duce. As more fully set forth above with respect to amended claim 11, the combination of Imamura and Duce does not disclose, or even suggest, the first heater supply lead at least largely covers a full surface of the sensor element in at least one of a supply region and a region of the heater. As such, a perpendicular projection of the second heater supply lead onto the stratification of the first heater supply lead cannot be an inherent default. No independent basis for the rejection of claim 21 is presented by the Office Action, and the combination of Imamura and Duce does not disclose, or even suggest, all of the features of claim 21. Therefore, the combination of Imamura and Duce does not render unpatentable independent claim 21.

Withdrawal of the present rejection is therefore respectfully requested.

IV. New Claim 22

New claim 22 has been added herein. It is respectfully submitted that claim 22 adds no new matter and is fully supported by the present application, including the Specification, for example, at page 6, lines 11 to 14. It is respectfully submitted that claim 22 is patentable over the combination of Imamura and Duce for at least the following reasons.

Claim 22 is directed to a sensor element for detecting a concentration of a gas component in an exhaust gas of an internal combustion engine, wherein a heater is energized and de-energized by a change in the potential of a second heater supply lead in order to adjust a predetermined temperature of the measuring device. The Office Action, in interpreting Imamura with respect to the rejection of claim 11, refers to the low-voltage-side lead portion 552 as a first heater supply lead at an at least largely constant electrical potential. Similarly, then, the high-voltage-side lead 551 may be inferred to be interpreted by the Office Action as having an electrical potential that is at least largely constant. Claim 22, on the other hand, features a second heater supply lead that has a change in voltage so as to energize and de-

energize the heater. In this manner, in association with the other elements of the present invention, the system and the circuit elements of the heater supply leads make it possible to avoid an induced voltage from the heater supply leads into the measuring function of the sensor element.

Imamura does not disclose all of the features of new claim 22. The secondary reference, Duce, does not cure the critical deficiencies of the primary reference. Therefore, new claim 22 is patentable over the combination of the references cited in the Office Action.

V. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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